



Formo Fibreglass
Postnet Suite #61
Private Bag X15
Somerset West
7129

1 DESIGN CRITERIA

1.1. DESCRIPTION

Formo Fibreglass glass reinforced polyester (GRP) slide gates are individually laminated with a honeycomb inner core for high rigidity. The gate forms a totally encapsulated structural sandwich with a high strength-to-weight ratio and is totally corrosive resistance. If required, additional reinforcement can be molded in and/or fastened on the outside of the gate. The seal design is such that for seating gates the water tightness will improve with an increasing head. For unseating gates a latching system is used to ensure proper sealing.

The gates are designed and manufactured using BS 7775:2005 and AWWA C563 as standards.

1.2. DESIGN

Gate assemblies are designed so that the maximum fiber stress (ultimate or yield whichever applies) does not exceed 2.5 times the working stress. Gates shall be suitably reinforced to withstand the maximum seating head with a deflection of $1/360$ of the gate width or 6.0 mm whichever is less. Gates with unseating heads shall be designed for a maximum deflection of $1/360$ of the gate width or 2.0 mm whichever is less at the maximum operating head. All gates shall be flat and level. Gates subject to seating and unseating heads shall be reinforced for both conditions.

Visual inspection for defects shall be made without the aid of magnification and defects shall be classified as to type and level as shown in Table 1 of ASTM D2563-94, re-approved 2002. Allowable surface tolerances are as follows:

DEFECTS	ALLOWABLE TOLERANCE
Cracks, Crazing, Blisters, Chips, Pits, Dry Spots, Fish Eyes, Burned Areas or Entrapped Air	None
Wrinkles and solid blisters	Maximum Deviation: 10% of thickness, not to exceed 3.0 mm
Surface porosity (pinholes or pores in the laminate surface)	None
Exposed Glass, Exposure of cut edges	None
Scratches	None more than 0.125 mm deep
Foreign Matter	None

1.3. LEAKAGE

Slide gates shall be substantially watertight under the design head conditions. Under the design seating head, the leakage shall not exceed 0.50 l/min per meter of seating perimeter. Under the design unseating head, the leakage for heads of 3m or less shall not exceed 1.25 l/min per meter of perimeter (AWWA C563).

2. MATERIALS

2.1. GATES

Shall be of glass reinforced polyester (GRP), totally encapsulating an internal honeycomb reinforcing structure. Structural characteristics for a glass mat laminate shall meet the following minimum physical properties (AWWA C563).

Tensile strength	104 MPa
Modulus of elasticity	7 000 MPa
Ultimate flexural strength	138 MPa
Ultimate compressive strength	154 MPa
Water absorption	0.13% (in 24 hours)

2.2. FRAME

The frame shall be manufactured using GRP pultruded profiles.

2.3. CLOSURE SEALS

- a) Hollow Bulb J-Seals of extruded EPDM or Neopreen with bonded corners per ASTM D-2000. The following physical characteristics apply:
- | | |
|------------------|---------------------------|
| Specific Gravity | 1.25 |
| Hardness | 55 - 65 Shore A Durometer |
| Tensile Strength | 10 MPa (minimum) |
| Elongation | 300% |
- b) J-Seal Clamping Bars and Fasteners 304/316 Stainless Steel.
- c) Wear Strips UHMW polyethylene.
- Physical properties are:
- | | |
|---------------------------|-------------------|
| Tensile Strength | 38.6 MPa |
| Water Absorption | 0.01% (in 24 hrs) |
| Flexural Modulus (@22° C) | 896 - 965 MPa |
| Coefficient of Friction | 0.15 |